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Route To:

Date: July 7, 2008

Subject: White Pine Blister Rust in Zuni Mountains

To: District Ranger, Mount Taylor RD, Cibola NF

This letter summarizes recent observations about white pine blister rust in the Zuni Mountains. Additional comments regarding insect and disease activity in Victor Wyant's silvicultural certification stand are also included.

Blister rust (*Cronartium ribicola*) was first detected in the Zunis in the fall of 2007. At that time, a sapling-size tree with a single infection (probably 4 or 5 years old) was found in Diener Canyon, about one mile west of Mount Sedgwick. (The sighting was made by Bob Danchok, an employee of the Dorena Tree Improvement Center in R6, during a hunting trip.) In late May 2008, Victor Wyant (Cibola NF) and I found numerous infected white pines in this portion of Diener Canyon. Nearly all of the infections (cankers) were only 3 or 4 years old, and were probably fruiting (i.e. producing blisters) for the first time.

We found a second significant pocket of blister rust about ½ mile east of the Ojo Redondo campground. This site is about one mile south of Diener Canyon, and just below the head of an east facing canyon that eventually drains into Zuni Canyon. Several young trees in the canyon bottom here had fruiting cankers; most infections were 8 to 10 years old. The lower, north facing slope of this canyon is a white pine cover type and includes several acres of old-growth.

This portion of the Zuni Mountains, which ranges from about 8600 to 9200' in elevation, has a sizable white pine population—certainly one of the largest on the Cibola NF. There are a few stands that are white pine cover type (based on a majority of basal area) and many others where white pine is a significant component. Orange gooseberry (*Ribes pinetorum*), a very susceptible alternate host for blister rust, appears to be common throughout this area.



Old-growth white pine in Zunis

The blister rust outbreak here is in its very early stages of development. We can expect this non-native disease to become more severe over time, gradually affecting more trees and more stands in the coming years. Most spread will probably occur during especially favorable years, known as "wave years." Nevertheless, it appears that rust "hazard" varies considerably throughout this area. Relatively cool, moist canyon bottoms (like the two sites described above) present the



most favorable conditions for this disease. Drier, upland sites will probably be much less affected.

Victor's certification stand is about 40 acres in size and located just north of the Ojo Redondo Campground. This is a mixed-conifer site with Douglas fir (the most abundant tree), ponderosa pine, and white pine. No blister rust was detected during a recent stand exam; we saw a single infection here in late May. As in most stands in this area, probably less than 1% of the white pines are currently infected.

The most significant disease here is Douglas-fir dwarf mistletoe, which is present throughout most of the stand. Most of the ponderosa pine is mistletoe-free; a few pockets of infection were observed in the upper part of the stand. Although root diseases (primarily *Armillaria*) are present in this area, they do not appear to be a significant management concern. Bark beetle activity has been limited to scattered individual trees in recent years (endemic levels); however, susceptibility to outbreaks will increase with increasing stand densities. The last major entry in this stand--a selective harvest--was in 1979, although a few acres of dense pole-timber appear to have been thinned more recently.

Silviculturally, this stand presents excellent opportunities. In particular is the opportunity to favor healthy pines—both ponderosa and white pine—at the expense of the unhealthy Douglas fir. It should be noted that “opening up” a stand tends to stimulate the remaining mistletoe; this is often most striking on Douglas-fir. However, retention of some infected Douglas fir—especially groups of larger trees—may be quite beneficial from a wildlife perspective. Opening up this stand will also tend to favor *Ribes*, which is already quite common here. It appears that this stand has a low to moderate potential (hazard) for blister rust. Although blister rust can be expected to cause some damage here eventually, it appears that the white pines can be managed successfully. With its good accessibility, this will be a good site to monitor rust development (and host resistance) in the coming decades.

Please contact me at (505) 842-3288, if you have additional questions or need further assistance.

/s/ David A. Conklin

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